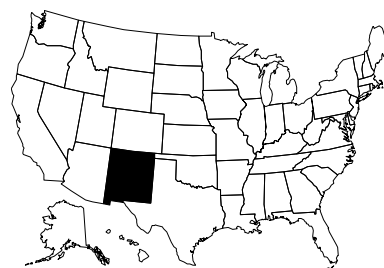


# NEW MEXICO

## Contact Information

Seva J. Joseph, Environmental Specialist  
New Mexico Environment Department (NMED)  
1190 Saint Francis Drive ■ Santa Fe, NM 87502-0110  
Phone 505/827-0573 ■ Fax 505/827-0160  
email: [seva\\_joseph@nmenv.state.nm.us](mailto:seva_joseph@nmenv.state.nm.us)  
NMED Surface Water Quality Bureau: <http://www.nmenv.state.nm.us/swqb/swqb.html>



## Program Description

Starting in 1998 the New Mexico Environment Department's (NMED) Surface Water Quality Bureau (SWQB) had a goal of monitoring all watersheds in the state on a 5-year cycle. NMED has recently begun to survey fish populations to supplement the data from the NM Department of Game and Fish. NMED uses RBP collection methods and is currently working on assessment methods suitable for the depauperate fish population of New Mexico. The SWQB coordinates with the NM Department of Game and Fish to obtain the most current fishery assessments in the watersheds.

The benefits of this approach are:

- It provides a systematic, detailed review of water quality data and allows for a more efficient use of valuable monitoring resources;
- It provides information at a scale where implementation of corrective activities is feasible;
- With an established order of rotation and predictable sampling in each basin, it is easier to coordinate efforts with other programs and water quality entities, and program efficiency is enhanced and the basis for management decisions is improved.

## Documentation and Further Information

*Water Quality and Water Pollution Control in New Mexico*, 2000 305(b):  
[http://www.nmenv.state.nm.us/swqb/305b\\_2000.html](http://www.nmenv.state.nm.us/swqb/305b_2000.html)

*State of New Mexico Standards for Interstate and Intrastate Surface Waters*, December 16, 2001:  
[http://www.nmenv.state.nm.us/NMED\\_regs/swqb/20\\_6\\_4\\_nmac.html](http://www.nmenv.state.nm.us/NMED_regs/swqb/20_6_4_nmac.html)

*Surface Water Quality Bureau Library*: [http://www.nmenv.state.nm.us/swqb/links.html#WPS\\_Library](http://www.nmenv.state.nm.us/swqb/links.html#WPS_Library)

For a list of and links to *Reports and Publications*, go to:  
<http://www.nmenv.state.nm.us/gwb/Technical%20resources/TSS.html#Reports>

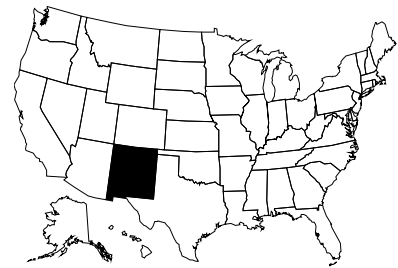
For a *Table of Contents* containing ALL Technical Reports and other information, go to:  
<http://www.nmenv.state.nm.us/gwb/Technical%20resources/TSS.html>

For a list of and links to *Biological Databases*, go to:  
<http://www.nmenv.state.nm.us/gwb/Technical%20resources/TSS.html#Biological>

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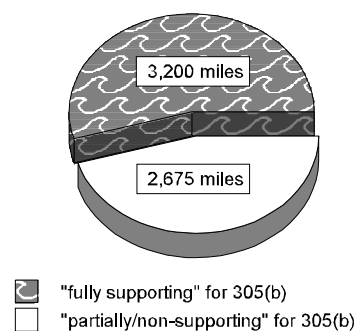
## Programmatic Elements

<b>Uses of bioassessment within overall water quality program</b>	<input checked="" type="checkbox"/>	problem identification (screening)
	<input checked="" type="checkbox"/>	nonpoint source assessments
	<input checked="" type="checkbox"/>	monitoring the effectiveness of BMPs
	<input checked="" type="checkbox"/>	ALU determinations/ambient monitoring
	<input checked="" type="checkbox"/>	promulgated into state water quality standards as biocriteria
	<input type="checkbox"/>	support of antidegradation
	<input type="checkbox"/>	evaluation of discharge permit conditions
	<input checked="" type="checkbox"/>	TMDL assessment and monitoring
	<input type="checkbox"/>	other:
<b>Applicable monitoring designs</b>	<input checked="" type="checkbox"/>	targeted (i.e., sites selected for specific purpose) ( <i>special projects only</i> )
	<input checked="" type="checkbox"/>	fixed station (i.e., water quality monitoring stations) ( <i>comprehensive use throughout jurisdiction</i> )
	<input type="checkbox"/>	probabilistic by stream order/catchment area
	<input checked="" type="checkbox"/>	probabilistic by ecoregion, or statewide ( <i>special projects only</i> )
	<input checked="" type="checkbox"/>	rotating basin ( <i>comprehensive use throughout jurisdiction</i> )
	<input type="checkbox"/>	other:

## Stream Miles

<b>Total miles</b> (State based determination)	<b>110,741</b>
Total perennial miles	8,682
<b>Total miles assessed for biology</b>	<b>5,875</b>
fully supporting for 305(b)	3,200
partially/non-supporting for 305(b)*	2,675
listed for 303(d)*	—
number of sites sampled ( <i>on an annual basis</i> )	30
number of miles assessed per site	—

## 5,875 Miles Assessed for Biology



\*A total of 3,080 miles are partially/non-supporting when miles with "impacts observed" are included. NMED is currently working on a 303(d) list.

## Aquatic Life Use (ALU) Designations and Decision-Making

<b>ALU designation basis</b>	Fishery Based Uses and Warm Water vs. Cold Water	
<b>ALU designations in state water quality standards</b>	Five designations: Coldwater Fishery, High Quality Coldwater Fishery, Limited Warmwater Fishery, Marginal Coldwater Fishery, and Warmwater Fishery	
<b>Narrative Biocriteria in WQS</b>	none	
<b>Numeric Biocriteria in WQS</b>	none	
<b>Uses of bioassessment data in integrated assessments with other environmental data (e.g., toxicity testing and chemical specific criteria)</b>	<input checked="" type="checkbox"/>	assessment of aquatic resources
	<input checked="" type="checkbox"/>	cause and effect determinations
	<input type="checkbox"/>	permitted discharges
	<input checked="" type="checkbox"/>	monitoring (e.g., improvements after mitigation)
	<input checked="" type="checkbox"/>	watershed based management
<b>Uses of bioassessment/ biocriteria in making management decisions regarding restoration of aquatic resources to a designated ALU</b>	none	

## Reference Site/Condition Development

<b>Number of reference sites</b>	<b>200 total</b>	
<b>Reference site determinations</b>	<input type="checkbox"/>	site-specific
	<input type="checkbox"/>	paired watersheds
	<input type="checkbox"/>	regional (aggregate of sites)
	<input checked="" type="checkbox"/>	professional judgment
	<input type="checkbox"/>	other:
<b>Reference site criteria</b>	The least disturbed sites are picked according to best professional judgment (based on chemistry, quantitative habitat measurements, visual indicators, etc). There are plans to shift to RIVPACS as biocriteria are developed during the next few years.	
<b>Characterization of reference sites within a regional context</b>  <i>Not applicable</i>	<input type="checkbox"/>	historical conditions
	<input type="checkbox"/>	least disturbed sites
	<input type="checkbox"/>	gradient response
	<input type="checkbox"/>	professional judgment
	<input type="checkbox"/>	other:
<b>Stream stratification within regional reference conditions</b>	<input type="checkbox"/>	ecoregions (or some aggregate)
	<input checked="" type="checkbox"/>	elevation ( <i>preliminary ecoregions are based on elevation and other habitat parameters</i> )
	<input type="checkbox"/>	stream type
	<input type="checkbox"/>	multivariate grouping
	<input type="checkbox"/>	jurisdictional (i.e., statewide)
	<input type="checkbox"/>	other:
<b>Additional information</b>	<input type="checkbox"/>	reference sites linked to ALU
	<input type="checkbox"/>	reference sites/condition referenced in water quality standards
	<input checked="" type="checkbox"/>	some reference sites represent acceptable human-induced conditions

## Field and Lab Methods

<b>Assemblages assessed</b>	<input checked="" type="checkbox"/>	benthos (30 samples/year; single season, multiple sites - watershed level)
	<input checked="" type="checkbox"/>	fish (30 samples/year; single season, multiple sites - watershed level)
	<input checked="" type="checkbox"/>	periphyton* (9 samples/year; single observation, limited sampling)
	<input checked="" type="checkbox"/>	other: phytoplankton (9 samples/year; single observation, limited sampling)
<b>Benthos</b>		
sampling gear		Hess, D-frame, kick net (1 meter); 500-600 micron mesh
habitat selection		riffle/run (cobble)
subsample size		300 count
taxonomy		combination (it depends on the family--some to genus, some to species level)
<b>Fish</b>		
sampling gear		backpack and bank electrofisher; 1/4" mesh
habitat selection		multihabitat
sample processing		length measurement and anomalies
subsample		batch
taxonomy		species
<b>Periphyton*</b>		
sampling gear		<b>natural substrate:</b> collect by hand; <b>artificial substrate:</b> periphytometer
habitat selection		richest habitat and multihabitat
sample processing		taxonomic identification
taxonomy		diatoms only
<b>Habitat assessments**</b>		
		visual based, hydrogeomorphology; and the RBP assessment is conducted with the bioassessment. NMDE may also conduct a Rosgen type hydrogeomorphological assessment, including pebble counts, independently of the bioassessment.
<b>Quality assurance program elements</b>		
		standard operating procedures, quality assurance plan, sorting proficiency checks and specimen archival

\*Periphyton is collected primarily from lakes. It is only collected from streams in response to a specific problem or when looking at a certain impairment – sampling is very minimal (<10).

\*\*Up to this point bioassessments have been conducted as described in the EPA's RBP. These methods are just now starting to be refined for regional applicability.

## Data Analysis and Interpretation

<b>Data analysis tools and methods</b>	<input checked="" type="checkbox"/>	summary tables, illustrative graphs
	<input type="checkbox"/>	parametric ANOVAs
	<input type="checkbox"/>	multivariate analysis
	<input checked="" type="checkbox"/>	biological metrics ( <i>aggregate metrics into an index</i> )
	<input type="checkbox"/>	disturbance gradients
	<input type="checkbox"/>	other:
<b>Multimetric thresholds</b>		
transforming metrics into unitless scores		95 <sup>th</sup> percentile of reference population
defining impairment in a multimetric index		95 <sup>th</sup> percentile of reference population
<b>Evaluation of performance characteristics</b>  <i>Not currently evaluated</i>	<input type="checkbox"/>	repeat sampling
	<input type="checkbox"/>	precision
	<input type="checkbox"/>	sensitivity
	<input type="checkbox"/>	bias
	<input type="checkbox"/>	accuracy
<b>Biological data</b>		
Storage		Just recently started using MS Access. All historic data (1977 - 1999) are in STORET
Retrieval and analysis		In the process of moving from STORET to MS Access; some data are also in Excel